

Utah Department of Environmental Quality Division of Solid and Hazardous Waste Fact Sheet



SEPTEMBER 1999

CHEMICAL AGENTS

Chemical agents at Deseret Chemical Depot are contained in rockets, land mines, mortars, artillery projectiles and cartridges, bombs, spray tanks, and ton containers. Dugway Proving Ground also stores chemical munitions. Two types of chemical agents that are stored in Utah are *nerve agents* and *blister agents*.

NERVE AGENTS

Nerve agents are organophosphates that cause a blocking of the cholinesterase enzymes. When acetyl cholinesterase is blocked, acetylcholine builds-up within the nervous system. This build-up may cause an over-stimulation of muscles and organs resulting in symptoms such as twitching or difficulty in breathing. Mild exposures may result in pinpoint pupils and runny nose. Higher doses can be fatal. Antidotes are available for nerve agents.

The military classifies nerve agents as *non-persistent* or *persistent*. Non-persistent nerve agents are typically liquids that evaporate about as easily as water. If the nerve agent has evaporated, the vapor can be inhaled. Persistent nerve agents are typically liquids that evaporate about as easily as motor oil.

GB (Sarin) is a non-persistent nerve agent that may be

absorbed as a vapor through the respiratory tract, skin, eyes, or by ingestion. The Deseret Chemical Depot stockpile contains substantial quantities of GB.

GA (tabun) is a non-persistent nerve agent that is about half as toxic as GB. Relatively small amounts of GA are stored in Utah.

VX is a persistent nerve agent. VX is easily absorbed through the skin or ingested as a liquid. VX can be absorbed through the respiratory tract as a vapor or aerosol. The Deseret Chemical Depot stockpile contains substantial quantities of VX.

BLISTER AGENTS

Blister agents were named for their effect on skin and other tissues. The blister agents are *vesicants* that are severe irritants to tissue and can be deadly at high concentrations.

Mustard acts by poisoning cells. Both liquid and vapor can cause intense inflammation and severe blistering. Internally, the blood-forming tissues, such as bone marrow, are particularly sensitive to mustard. No antidote is available. The International Agency for Research on Cancer considers mustard a known human carcinogen.

Sulfur mustard is designated as H, HD and HT. The main difference between the different types of mustard is the freezing point. The different sulfur mustard formulations change from a liquid to a solid at temperatures ranging from 32° to 58° F. Mustard will evaporate very slowly. The Deseret Chemical Depot stockpile contains substantial quantities of mustard.

Lewisite (L) is a blister agent that produces effects similar to the mustard but is a more potent systemic poison. Lewisite is likely carcinogenic. The body is unable to detoxify Lewisite but an antidote has been developed. Relatively small amounts of Lewisite are stored in Utah.

Hazardous Waste

Chemical agents and the waste resulting from treating or testing the agents are regulated as hazardous waste.

Additional Information

If you would like more detailed information or have questions please contact:

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